

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization International Bureau



(43) International Publication Date
27 January 2005 (27.01.2005)

PCT

(10) International Publication Number
WO 2005/006939 A2

(51) International Patent Classification⁷:

A61B

(74) Agent: TUNG, Hao, Y.; Heller Ehrman White & McAuliffe LLP, 275 Middlefield Road, Menlo Park, CA 94025-3506 (US).

(21) International Application Number:

PCT/US2004/019125

(22) International Filing Date: 14 June 2004 (14.06.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

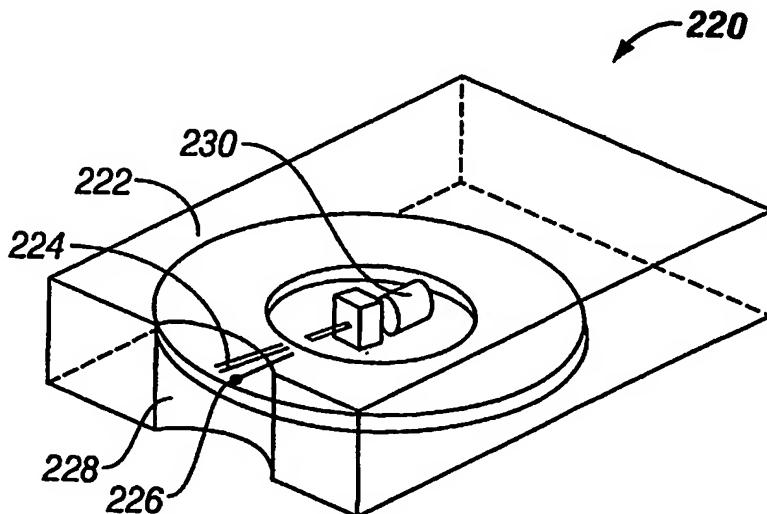
60/478,041	11 June 2003 (11.06.2003)	US
60/478,662	13 June 2003 (13.06.2003)	US
60/478,692	13 June 2003 (13.06.2003)	US
60/483,324	27 June 2003 (27.06.2003)	US

(71) Applicant (for all designated States except US): PE-LIKAN TECHNOLOGIES, INC. [US/US]; 1072 East Meadow Circle, Palo Alto, CA 94303 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): BRIGGS, Barry, Dean [US/US]; 2070 Anthony Drive, Campbell, CA 95008 (US). SHULTE, Tom [US/US]; 1072 East Meadow Circle, Palo Alto, CA 94303 (US). ALDEN, Don [US/US]; 1312 Nelson Way, Sunnyvale, CA 94087 (US). ROSS, James [US/US]; 869 Lucerne Street, Livermore, CA 94551 (US). MAUZE, Ganapati [US/US]; 1114 W. Knickerbocker Drive, Sunnyvale, CA 94087 (US). FREEMAN, Dominique, M. [GB/US]; 4545 La Honda Road, La Londa, CA 94020 (US).

(54) Title: METHOD AND APPARATUS FOR BODY FLUID SAMPLING AND ANALYTE SENSING



(57) Abstract: A method of controlling a penetrating member is provided. The method comprises providing a lancing device comprising a penetrating member driver having a position sensor and a processor that can determine the relative position and velocity of the penetrating member based on measuring relative position of the penetrating member with respect to time; providing a predetermined velocity control trajectory based on a model of the driver and a model of tissue to be contacted. In some embodiments, a feedforward control to maintain penetrating member velocity along said trajectory.

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
27 January 2005 (27.01.2005)

PCT

(10) International Publication Number
WO 2005/006939 A3

(51) International Patent Classification⁷: A61B 5/00, B65D 33/00, 81/00

(21) International Application Number: PCT/US2004/019125

(22) International Filing Date: 14 June 2004 (14.06.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

60/478,041	11 June 2003 (11.06.2003)	US
60/478,662	13 June 2003 (13.06.2003)	US
60/478,692	13 June 2003 (13.06.2003)	US
60/483,324	27 June 2003 (27.06.2003)	US

(71) Applicant (for all designated States except US): PELIKAN TECHNOLOGIES, INC. [US/US]; 1072 East Meadow Circle, Palo Alto, CA 94303 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): BRIGGS, Barry,

(52) International Search Report:

(53) International Preliminary Examination Report:

(54) Title: METHOD AND APPARATUS FOR BODY FLUID SAMPLING AND ANALYTE SENSING

(55) Description:

(56) Claims:

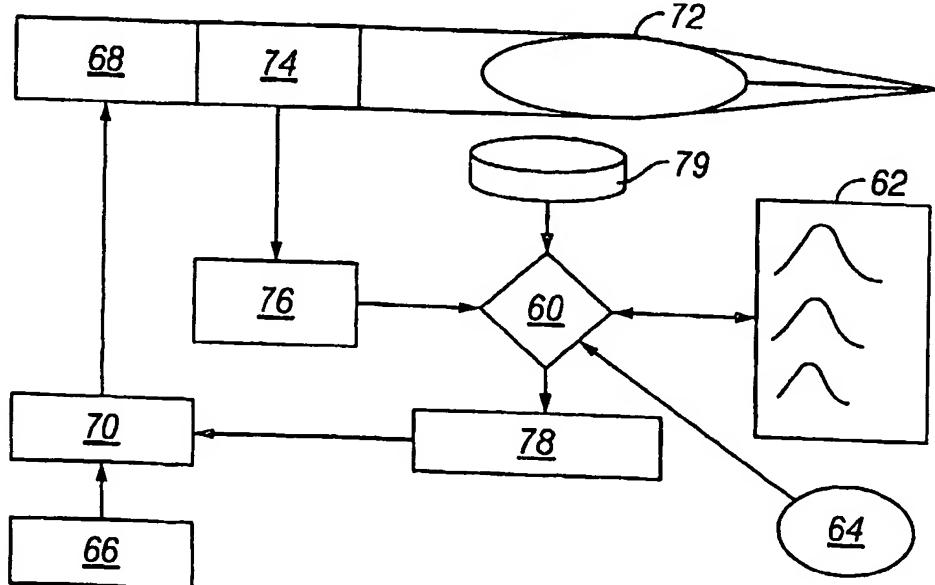
(57) Abstract: The method comprises providing a lancing device comprising a penetrating member (68) and a processor (60) that can determine the relative position and velocity of the penetrating member (18,72) based on measuring relative position of the penetrating member with respect to time; providing a predetermined velocity control trajectory based on a model of the driver (68) and a model of tissue to be contacted. Furthermore, a feedforward control is able to maintain penetrating member velocity along the trajectory.

Dean [US/US]; 2070 Anthony Drive, Campbell, CA 95008 (US). SHULTE, Tom [US/US]; 1072 East Meadow Circle, Palo Alto, CA 94303 (US). ALDEN, Don [US/US]; 1312 Nelson Way, Sunnyvale, CA 94087 (US). ROSS, James [US/US]; 869 Lucerne Street, Livermore, CA 94551 (US). MAUZE, Ganapati [US/US]; 1114 W. Knickerbocker Drive, Sunnyvale, CA 94087 (US). FREEMAN, Dominique, M. [GB/US]; 4545 La Honda Road, La Londa, CA 94020 (US).

(74) Agent: TUNG, Hao, Y.; Heller Ehrman White & McAuliffe LLP, 275 Middlefield Road, Menlo Park, CA 94025-3506 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

[Continued on next page]



WO 2005/006939 A3



(84) **Designated States (unless otherwise indicated, for every kind of regional protection available):** ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) **Date of publication of the international search report:**
31 March 2005

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

Published:

— with international search report